

1 1. A method for creating virtual private connections
2 between end points in a shared storage area network (SAN),
3 the steps comprising:

4 a) providing a virtual connection architecture and a
5 host initiator operatively connected thereto, said host
6 initiator generating and transmitting I/O commands to said
7 virtual connection architecture;

8 b) comparing source and destination information from
9 said I/O commands to a predetermined list of allowable
10 connections; and

11 c) when said source and destination information matches
12 said predetermined list of allowable connections, creating a
13 data connection between said host initiator and a storage
14 device, or a logical portion thereof, operatively connected
15 to said virtual connection architecture, thereby
16 establishing a virtual private SAN.

1 2. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 1,
3 wherein multiple virtual private SANs function independently
4 and substantially simultaneously within said shared SAN.

1 3. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein multiple host initiators share a common physical
4 data channel.

1 4. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein said multiple host initiators are provided a
4 protected end-to-end data path.

1 5. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein said multiple, virtual private SANs support at least
4 one SAN productivity product from the group: hubs, switches,
5 gateways and routers.

1 6. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein said comparing step (b) comprises determining a
4 level of access permission for said host initiator.

1 7. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 6,
3 the steps further comprising:

4 d) storing information representative of at least one
5 of said allowable connections.

1 8. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 7,
3 wherein said storing step (d) comprises storing said
4 information in a virtual connection cache.

1 9. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 8,
3 the steps further comprising:

4 e) using said stored virtual connection information
5 to validate subsequent requests for access from
6 said host initiator.

1 10. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 8,
3 wherein said virtual connection architecture comprises a
4 virtual connection manager.

1 11. The method for creating virtual private
2 connections between end points in a shared SAN as recited in
3 claim 2, wherein said multiple virtual private SANs are
4 operable within a existing SAN without need for additional
5 software, middleware, drivers, or modifications to an
6 existing operating system.

1 12. The method for creating virtual private
2 connections between end points in a shared SAN as recited in
3 claim 2, wherein said connections are fully secured
4 independently of the security of each individual host.

1 13. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein said multiple virtual private SANs operate
4 independently of attached storage devices.

1 14. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 13,
3 wherein said attached storage devices comprise any mixture
4 of legacy or new technology storage devices.

1 15. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 2,
3 wherein said multiple virtual private SANs operates
4 independently of connection interfaces and provide support
5 for at least one from the group of interfaces: Fibre
6 Channel, SCSI, other SAN interfaces.

1 16. The method for creating virtual private
2 connections between end points in a shared SAN as recited in
3 claim 2, wherein said at least one initiator host comprises
4 a host initiator interface for providing a connection to
5 said virtual connection architecture.

1 17. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 6,
3 the steps further comprising:

4 d) providing a registration engine for receiving a
5 registration command from said host initiator.

1 18. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 17,
3 wherein said registration command comprises at least one of
4 the commands from the group: full registration, periodic
5 registration, and de-registration commands.

1 23. The method for creating virtual private connections
2 between end points in a shared SAN as recited in claim 8,
3 the steps further comprising:

4 e) automatically capturing an existing SAN
5 configuration and using said captured
6 configuration information to automatically
7 establish persistent access controls.

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